StoneGate™ FW-310

Appliance Installation Guide

STONESOFT

Secure Information Flow

Legal Information

End-User License Agreement
The use of the products described in these materials is subject to the then current end-user license agreement, which can be found at the Stonesoft website:
www.stonesoft.com/en/support/eula.html

Third Party Licenses
The StoneGate software includes several open source or third-party software packages. The appropriate software licensing information for those products at the Stonesoft website:
www.stonesoft.com/en/support/third_party_licenses.html

U.S. Government Acquisitions
If Licensee is acquiring the Software, including accompanying documentation on behalf of the U.S. Government, the following provisions apply. If the Software is supplied to the Department of Defense ("DoD"), the Software is subject to "Restricted Rights", as that term is defined in the DOD Supplement to the Federal Acquisition Regulations ("DFAR") in paragraph 252.227-7013(c) (1). If the Software is supplied to any unit or agency of the United States Government other than DOD, the Government's rights in the Software will be as defined in paragraph 52.227-19(c) (2) of the Federal Acquisition Regulations ("FAR"). Use, duplication, reproduction or disclosure by the Government is subject to such restrictions or successor provisions.

Product Export Restrictions
The products described in this document are subject to export control under the laws of Finland and the European Council Regulation (EC) N:o 1334/2000 of 22 June 2000 setting up a Community regime for the control of exports of dual-use items and technology (as amended). Thus, the export of this Stonesoft software in any manner is restricted and requires a license by the relevant authorities.

General Terms and Conditions of Support and Maintenance Services
The support and maintenance services for the products described in these materials are provided pursuant to the general terms for support and maintenance services and the related service description, which can be found at the Stonesoft website:
www.stonesoft.com/en/support/view_support_offering/terms/

Replacement Service
The instructions for replacement service can be found at the Stonesoft website:
www.stonesoft.com/en/support/view_support_offering/return_material_authorization/

Hardware Warranty
The appliances described in these materials have a limited hardware warranty. The terms of the hardware warranty can be found at the Stonesoft website:
www.stonesoft.com/en/support/view_support_offering/warranty_service/

Trademarks and Patents
The products described in these materials are protected by one or more of the following European and US patents: European Patent Nos. 1065844, 1189410, 1231538, 1259028, 1271283, 1289183, 1289202, 1304849, 1313290, 1326393, 1379046, 1330095, 131711, 1317937 and 1443729 and US Patent Nos. 6,650,621; 6 856 621; 6,885,633; 6,912,200; 6,996,573; 7,099,284; 7,127,739; 7,130,266; 7,130,305; 7,146,421; 7,162,737; 7,234,166; 7,260,843; 7,280,540; 7,302,480; 7,386,525; 7,406,534; and 7,461,401 and may be protected by other EU, US, or other patents, or pending applications. Stonesoft, the Stonesoft logo and StoneGate, are all trademarks or registered trademarks of Stonesoft Corporation. All other trademarks or registered trademarks are property of their respective owners.

Disclaimer
Although every precaution has been taken to prepare these materials, THESE MATERIALS ARE PROVIDED "AS-IS" and Stonesoft makes no warranty to the correctness of information and assumes no responsibility for errors, omissions, or resulting damages from the use of the information contained herein. All IP addresses in these materials were chosen at random and are used for illustrative purposes only.

Copyright © 2010 Stonesoft Corporation. All rights reserved. All specifications are subject to change.

Revision: SGAIG_FW-310_20100304

Introduction

Thank you for choosing Stonesoft's StoneGate appliance. This guide provides instructions for the initial hardware installation and the maintenance of the FW-310 appliances. See *Product Documentation* (page 5) for information on other available documentation.

The use of the appliance is subject to the acceptance of the End User License Agreement, which can be found at the Stonesoft website.

You must have a working Management Center on a separate server to bring the appliance(s) operational. The system architecture is explained on the next page. The installation of the Management Center and the configuration of your firewalls are explained in the *StoneGate Firewall/VPN Installation Guide*.

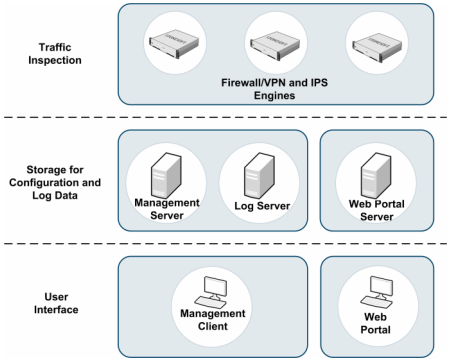
Contents

Getting Started 4
Safety Precautions 6
Front Panel 8
Back Panel 10
Connecting the Cables 11
Initial Configuration 13
Turning Off the Appliance 20
Maintenance Operations..... 21
Disposal Instructions 23

Caution – Never open the covers of the appliance! There are no user serviceable parts inside. Opening the covers may lead to serious injury and will void the warranty. Read the *Safety Precautions* (page 6) before you conduct any installation or maintenance operations on the appliance.

Getting Started

StoneGate System Components



The illustration above shows all available StoneGate components. Out of these, you need the following components to have an operational Firewall/VPN system:

1. A **Management Server**, which stores the configuration of the system. In most environments, it is best to have just one common Management Server for all firewall and IPS engines.
2. At least one **Log Server** to handle and store logs and alerts (can be installed simultaneously on the same machine with the Management Server).
3. At least one **Management Client** that you use to connect to the Management Server to change settings and monitor the system.
4. The **Firewall Engines** that handle the actual traffic processing (in this case, the StoneGate appliance).
5. **Licenses** for each component except the Management Client(s). Generate appliance licenses at the Stonesoft website with the POS (proof-of-serial-number) code attached to the appliance.

The **Web Portal Server** is an optional component that is available on separate order.

StoneGate IPS engines can be added to the same system for unified management and incident handling.

Installation Procedure

The appliance installation involves the following mandatory steps:

1. Configure and license the Firewall element in the Management Center (see the separate *StoneGate Firewall/VPN Installation Guide* or the *Online Help* of the Management Client).
2. Save the initial configuration to receive a one-time password for establishing trust between the appliance and the Management Server (see the separate *StoneGate Firewall/VPN Installation Guide*).
3. Connect the cables as instructed in this guide.
4. Perform the initial configuration and establish contact between the appliance and the Management Server as instructed in this guide.

Product Documentation

The following documentation covers the StoneGate Firewall/VPN products:

- The *Management Center Installation Guide* and the *Firewall/VPN Installation Guide* explain how to install the Management Center and how to configure your firewalls' basic settings.
- The *Online Help* of the Management Client contains the step-by-step instructions for the daily configuration and management of your system.
- The *Administrator's Guide* contains the same information as the *Online Help*, but in PDF form.
- The *Management Center Reference Guide* and the *Firewall/VPN Reference Guide* contain background and reference information that helps you to plan and understand your system.

Finding the Documentation

Press `F1` while in any Management Client window to view the *Online Help*.

All PDF guides are available:

- On the Management Center CD-ROM (in the `Documentation` folder)
- At the Stonesoft Website at http://www.stonesoft.com/en/support/technical_support_and_documents/manuals/.

Install the free Adobe Reader program to view the PDF documents (available at www.adobe.com/reader/).

Safety Precautions

The following safety information and procedures must be followed whenever working with the StoneGate Appliance. However, please be advised that StoneGate Appliances are not end-user serviceable, and you must never open the appliance covers for any reason. Doing so may lead to serious injury and will void any hardware warranty that may be associated with your appliance.

Electrical Safety Precautions

Basic electrical safety precautions should be followed to protect yourself from harm and the appliance from damage:

- Be aware of the locations of the power on/off switch as well as the room's emergency power-off switch, disconnection switch, or electrical outlet. If an electrical accident occurs, you can then quickly cut power to the system.
- Do not work alone when working with high voltage components.
- Use only one hand when working with powered-on electrical equipment. This is to avoid making a complete circuit, which will cause electrical shock. Use extreme caution when using metal tools, which can easily damage any electrical components or circuit boards they come into contact with.
- Do not use mats designed to decrease electrostatic discharge as protection from electrical shock. Instead, use rubber mats that have been specifically designed as electrical insulators.
- The power supply cord must include a grounding plug and must be plugged into a grounded electrical outlet.

Caution – Never open the appliance covers! There are no user serviceable parts inside. Opening the covers may lead to serious injury and will void the warranty.

General Safety Precautions

Follow these rules to ensure general safety:

- Keep the area around the appliance clean and free of clutter.
- We recommend using a regulating uninterruptible power supply (UPS) to protect the appliance from power surges, voltage spikes and to keep your system operating in case of a power failure.

ESD Precautions

Electrostatic discharge (ESD) is generated by two objects with different electrical charges coming into contact with each other. An electrical discharge is created to neutralize this difference, which can damage electronic components and printed circuit boards. Use a grounded wrist strap designed to prevent static discharge.

Note – Use a UPS (Uninterruptible Power Supply) in critical environments with your StoneGate appliance. If after a brief power outage your StoneGate appliance only partially starts up (for example, the power light is on, but the appliance does not connect) turn the appliance off for five seconds and then back on.

Operating Precautions

Care must be taken to assure that the appliance cover is in place when the appliance is operating to ensure proper cooling. If this rule is not strictly followed, the warranty may become void.

Operating and Storage Temperatures

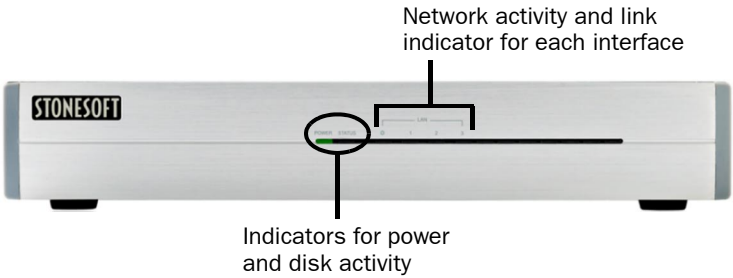
The allowed operating temperature of the appliance is +5...+40°C. The allowed storage temperature is 0...+70°C. Do not operate or store the appliance in temperatures outside these limits.

Battery Information and Precautions

The appliance contains an External Li-ion battery that is meant for RTC/ BIOS CMOS data saving only.

Caution – Do not change the battery; the battery must be replaced by authorized service personnel only. Danger of explosion if battery is incorrectly replaced. Replacement battery must be same or equivalent type recommended by the manufacturer. The battery must be disposed of according to the manufacturer's instructions. Short-circuiting the battery may heat the battery and cause severe injuries.

Front Panel



The indicators in the front panel provide you with critical information related to different parts of the system. The front panel indicator lights are explained below.

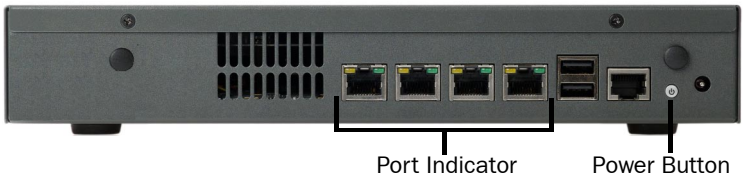
Table 1 Power and Disk Activity Indicators

Indicator	Status	Explanation
POWER	Unlit	The power is off or the appliance is in standby mode. Check the Power button light in the back panel. If the light is off, no power is supplied. If the light is red, the appliance is in standby mode.
POWER	Blue	Indicates power is being supplied to the system's power supply unit. This indicator is illuminated when the system is operating normally.
STATUS	Blinking yellow	Indicates hard disk activity.

Table 2 Network Activity and Link Indicator

Indicator	Status	Explanation
0 to 3	Unlit	No link.
0 to 3	Green	Link ok.

Back Panel



The back panel indicator lights and the colors of the Power button light are explained below.

The connectors on the back panel are explained in detail in *Connecting the Cables* (page 11).

Port Indicators

Table 3 Port Indicators

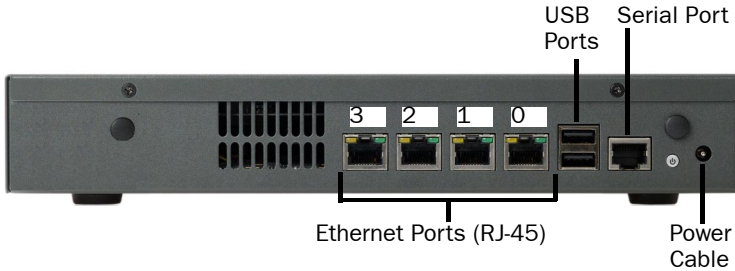
Status	Explanation
Both indicators are unlit	No link.
Both indicators are lit	Link ok. Activity indicator blinks on activity.

Power Button

The color of the Power button light shows the status of the appliance. The light is red when the appliance is in standby mode and blue when the appliance is operating normally. When you first connect the appliance to a power source the Power button light is red. You must push the Power button to change the status of the appliance from standby to active.

Note – If you need to turn off the appliance, always wait at least five (5) seconds before turning it on again. Otherwise, the appliance may not have time to clear properly and fails to start.

Connecting the Cables



Connecting Network Cables

▼ To connect network cables

➥ Connect network cables to the ethernet ports.

- The ports are numbered 3-0. The port numbers decrease from left to right.
- You are free to choose which ethernet ports you connect to which network. The ethernet ports are mapped to Interface IDs during the initial configuration.

Note – When the appliance is powered and you need to unplug it, always wait at least five (5) seconds before plugging in the appliance again. Otherwise, the appliance may not have time to clear properly and fails to start.

Cable Types

Make sure that the cables you use are correctly rated (CAT 5e or CAT 6 in gigabit networks).

Speed/Duplex Settings

Network cards at both ends of each cable must have identical speed/duplex settings. This also applies to the automatic negotiation setting: if one end of the cable is set to autonegotiate, the other end must also be set to autonegotiate. Gigabit standards require interfaces to use autonegotiation—fixed settings are not allowed at gigabit speeds.

Connecting the Appliance to the Power Supply

▼ To connect the appliance to the power supply

1. Connect the power cable to the power connector on the back of the appliance.
2. Plug the power cord into a grounded, high-quality power strip that offers protection from electrical noise and power surges.
   - We highly recommend using an uninterruptible power supply (UPS) to ensure continuous operation and minimize the risk of damage to the appliance in case of sudden loss of power.

Note – Do not connect the power cable to a power source yet.

Initial Configuration

To start using the appliance, you must activate the network interfaces and establish a secure connection to the Management Server as outlined in the sections below.

To successfully complete this configuration, the following prerequisites must be met:

- The Firewall element must be defined in the Management Center.
- You must have created a one-time password for this engine. See the *StoneGate Firewall/VPN Installation Guide* for details.
- If you use the configuration wizard to configure the engine, you must have created a one-time password for this engine.
- If you want to configure the engine automatically with a USB stick or to import some of the initial configuration information in the configuration wizard, you must have a saved initial configuration on a USB stick.

See the *StoneGate Firewall/VPN Installation Guide* for details.

Note – The appliance must contact the Management Server before it can be operational.

There are two ways to configure the engine software.

- You can configure the engine automatically with a USB stick (see *Configuring the Engine Automatically*.
- If the automatic configuration is not possible or desired, you can use the engine configuration wizard. See *Using the Engine Configuration Wizard* (page 14).

Configuring the Engine Automatically

The automatic configuration requires that you have a suitable configuration saved on a USB memory stick. See the *Firewall/VPN Installation Guide* or the *Online Help* of the Management Client for details.

▼ To configure the engine from a USB memory stick

1. Insert the USB stick that contains the configuration saved in your Management Client in one of the USB ports on the appliance.
2. Push the Power button in the back panel to turn on the appliance. The Power button light turns from red to blue. The appliance automatically imports the configuration from the USB stick, and then tries to make the initial contact to the Management Server.

- If the connection is successful, the appliance automatically reboots itself and the engine configuration is finished.

If you configure the engine with a USB stick, you must set a password for the **root** account in the Management Client to enable command line access to the engine. If you want to allow remote access to the engine using SSH, enable the SSH daemon for the engine in the Management Client. See the *Administrator's Guide* for more information.

Proceed to *After Successful Management Server Contact* (page 20).

If the Automatic Configuration Fails

- If the automatic configuration fails, and you do not have a display connected, you can check for the reason in the log (`sg_autoconfig.log`) written on the USB stick.
- If you see a "connection refused" error message, ensure that the Management Server IP address is reachable from the engine and check the IP addresses you have defined in the Management Client.
- If the configuration with the USB stick still does not succeed, follow the instructions for the manual configuration. See *Using the Engine Configuration Wizard* below.

Using the Engine Configuration Wizard

You can use the engine configuration wizard with all Management Center and Firewall versions. If you have saved the initial configuration on a USB stick, you can import it in the configuration wizard to reduce typing.

▼ To connect using a serial cable

1. Connect the serial cable supplied with the appliance to the serial port on the appliance and to a computer.
2. On the computer, open a terminal with settings 9600bps, 8 databits, 1 stopbit, no parity.
3. Push the Power button in the back panel to turn on the appliance. The Power button light turns from red to blue. The engine bootup process in shown in the console and, after some time, the engine configuration wizard starts.

Note – You can (re)start the engine configuration wizard at any time using the `sg-reconfigure` command on the engine command line.

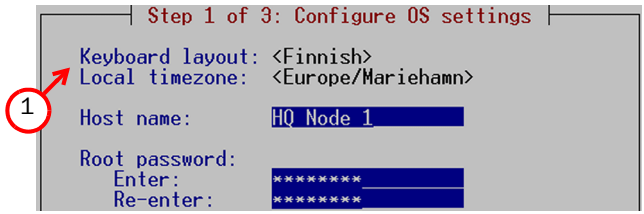
You can return to the engine configuration wizard at any time using the `sg-reconfigure` command on the engine command line.

▼ To select the configuration method

1. Do one of the following:
   - To import a saved configuration, highlight **Import** using the arrow keys and press ENTER.
   - To skip the import, highlight **Next** and press ENTER.
2. If you selected the Import option, select the configuration file.

▼ To set the keyboard layout

1. Highlight the entry field for **Keyboard Layout** using the arrow keys and press ENTER. The Select Keyboard Layout dialog opens.



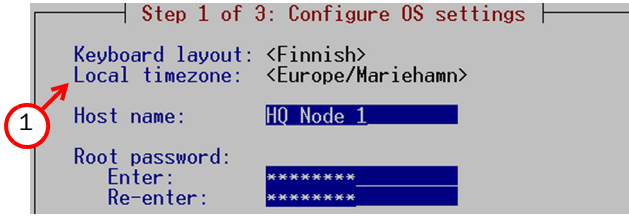
2. Highlight the correct layout and press ENTER.

Tip: Type in the first letter to move forward more quickly in the list of keyboard layouts.

Note – If the desired keyboard layout is not available, use the best-matching available layout, or select `US_English`.

▼ To set the engine's timezone

1. Highlight the entry field for **Local Timezone** using the arrow keys and press ENTER.



2. Select the correct timezone in the dialog that opens.

Note – The timezone setting affects only the way the time is displayed on the engine command line. The actual operation always uses UTC time.

Note – The appliance's clock is automatically synchronized with the Management Server's clock.

▼ To set the rest of the OS settings

1. Type in the name of the firewall.

2. Type in the password for the user `root`. This is the only account for engine command line access.

3. (*Optional*) Highlight **Enable SSH Daemon** and press the spacebar on your keyboard to select the option and allow remote access to engine command line using SSH.

Note – It is not necessary to enable the SSH daemon now for ongoing management, as this option can also be set through the Management Client. We recommend that you enable the SSH access in the Management Client when needed and then disable the access again when you are done.

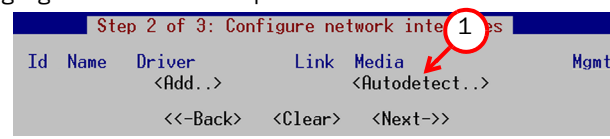
4. Highlight **Next** and press ENTER. The Configure Network Interfaces window is displayed.

Configuring the Network Interfaces

The configuration utility can automatically detect which network cards are in use. You can also add interfaces manually, if necessary.

▼ To add the network interfaces

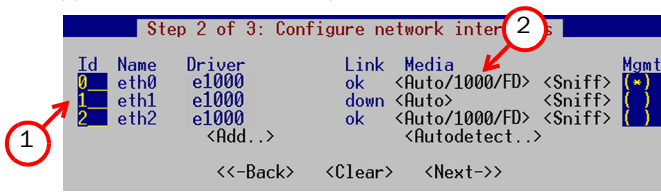
1. Highlight **Autodetect** and press ENTER.



2. Check that the automatically detected drivers are correct and that all interfaces have been detected. To add interfaces manually, click **Add** and select a device driver.

▼ To map the physical interfaces to interface IDs

1. Type in the Interface IDs to define how physical interfaces are mapped to the Interface IDs you defined in the Firewall element.



2. Highlight the **Media** column and press ENTER to match the speed/duplex settings to those used in each network.
   - Make sure that the speed/duplex settings of network cards are identical at both ends of each cable.

3. Highlight the **Mgmt** column and press the spacebar on your keyboard to select the correct interface for contact with the Management Server.

Note – The Management interface must be the same that you configured as the Primary Control Interface for the corresponding Firewall element in the Management Center.

4. Highlight **Next** and press ENTER to continue.

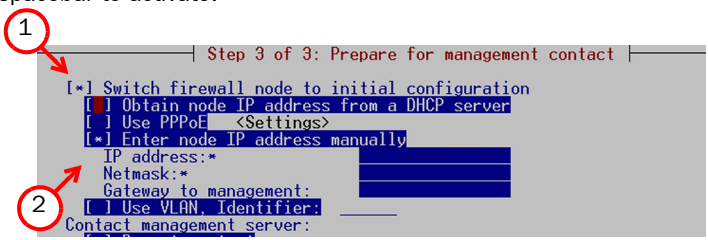
Contacting the Management Server

The Prepare for Management Contact window opens. If the initial configuration was imported, most of this information is filled in. This task has two parts. First, you activate an initial configuration on the firewall:

- The initial configuration contains the information that the engine needs to connect to the Management Server for the first time.
- The initial configuration is replaced with a working configuration when you install a Firewall Policy from the Management Server on this engine using the Management Client.

▼ To activate the initial configuration

1. Highlight **Switch Firewall Node to Initial Configuration** and press spacebar to activate.


1
2
Step 3 of 3: Prepare for management contact
[*] Switch firewall node to initial configuration
[ ] Obtain node IP address from a DHCP server
[ ] Use PPPoE <Settings>
[*] Enter node IP address manually
IP address:*
Netmask:*
Gateway to management:
[ ] Use VLAN, Identifier:
Contact management server:

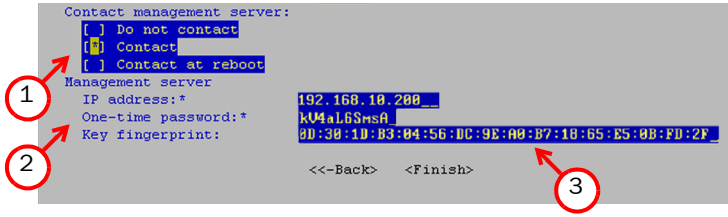
2. Fill in according to your environment. The information must match the settings you defined for the Firewall element (Primary Control IP Address).
   - If the engine and the Management Server are on the same network, you can leave the **Gateway to Management** field empty.

The initial configuration contains a simple firewall policy that allows only administration-related connections and blocks everything else.

In the second part of the configuration, you define the information needed for establishing a trust relationship between the engine and the Management Server.

▼ To fill in the Management Server information

1. Highlight **Contact Management Server** and press spacebar to activate.



2. Fill in the Management Server IP address and the one-time password that was created for this engine when you saved the initial configuration.
   - If you do not have a one-time password for this firewall, see the *Firewall/VPN Installation Guide* for instructions on how to save an initial configuration.
3. (*Optional*) Fill in the Key Fingerprint (also shown when you saved the initial configuration). Filling it in increases the security of the communications.
4. Highlight **Finish** and press ENTER.

The engine now tries to make initial Management Server contact.

- If you see a "connection refused" error message, ensure that the one-time password is correct and the Management Server IP address is reachable from the node. Save a new initial configuration if unsure about the password.
- If the engine is unable to contact the Management Server, make sure there are no networking problems, that all information defined in the Firewall element corresponds to what you entered in the configuration wizard and, if NAT is in use, that you have configured contact addresses for NAT as explained in the *Firewall/VPN Installation Guide*.

Note – Once initial contact has been made, the engine receives a certificate from the Management Center for identification. If the certificate is deleted or expires, you must repeat the initial contact using a new one-time password.

After Successful Management Server Contact

After you see a notification that Management Server contact has succeeded or the appliance has rebooted itself after automatic configuration with a USB stick, the firewall engine installation is complete and the firewall is ready to receive a policy. In a while, the firewall's status changes in the Management Client from **Unknown** to **No Policy Installed**, and the connection state is **Connected** indicating that the Management Server can connect to the node.

The next step is creating a security policy and installing it on the engine. See the *Online Help* of the Management Client for detailed instructions.

Caution – When using the command prompt, use the `reboot` command to reboot and `halt` command to shut down the node. Do not use the init command. You can also reboot the node using the Management Client.

Turning Off the Appliance

▼ To turn off the appliance

➥ Press the Power button on the appliance's back panel and hold it down for about five seconds. See *Back Panel* (page 10) for the location of the Power button.

Note – If you need to turn off the appliance, always wait at least five (5) seconds before turning it on again. Otherwise, the appliance may not have time to clear properly and fails to start.

Maintenance Operations

Connecting to the Engine Command Line

You may need to connect to the engine command line, for example, to undo a software upgrade.

▼ To connect to the engine command line

1. Connect the serial cable supplied with the appliance to the serial port on the appliance and to a computer.
2. On the computer, open a terminal with settings 9600bps, 8 databits, 1 stopbit, no parity.

Reverting to Previously Installed Software Version

This procedure allows you to undo a software upgrade.

The appliance has two working partitions. One is designated as active and the other as inactive. The inactive partition is used for upgrades and the status is switched between the partitions when the upgrade is ready to be activated. If the appliance does not start up with the new version, it automatically switches to the previous configuration at the next reboot. You can also switch back to the previously installed software version manually as instructed here whenever necessary.

▼ To switch back to the previously active version

1. Connect to the engine command line as described in *Connecting to the Engine Command Line* above.
2. (Re)start the appliance.
   - If the appliance is powered on, press `Enter`, log in as the user **`root`** with the password you have set for the appliance, and issue the command `reboot`.

Note – If you need to turn off the appliance, always wait at least five (5) seconds before turning it on again. Otherwise, the appliance may not have time to clear properly and fails to start.

3. Wait until a boot menu is shown.
4. Select **Switch to previously installed software version**. Note the indicated partition (A or B). The appliance switches partitions and boots up.

5. Refresh the policy on the firewall or firewall cluster to synchronize the policy and other configuration data between components.

Note – If the certificate for system communications on the previously used partition is not valid anymore, see the *Troubleshooting* section in the Management Client's online help for renewal instructions.

If you want to undo this operation, repeat the steps exactly as above.

Resetting the Appliance to Factory Settings

The primary way to reset the appliance's settings is to run the configuration wizard (**`sg-reconfigure`** command line tool) and to select the **Switch Firewall Node to Initial Configuration** option.

Note – Perform a factory reset only if you have a specific need to do so. Consult Stonesoft Support before performing this operation if you are unsure of whether this operation is necessary or not.

▼ To reset to factory settings

1. Connect to the engine command line as described in *Connecting to the Engine Command Line* (page 21).
2. (Re)start the appliance:
   - If the appliance is powered on, press `Enter`, log in as the user **`root`** with the password you have set for the appliance, and issue the command `reboot`.

Note – If you need to turn off the appliance, always wait at least five (5) seconds before turning it on again. Otherwise, the appliance may not have time to clear properly and fails to start.

3. Wait until a boot menu is shown.
4. Select **System Restore Options** from the boot menu.
5. Type **`1`** and press `Enter` to clear the settings. A confirmation prompt is shown.
6. Type **`YES`** and press `Enter` to perform the reset. If you decide to cancel the operation, type **`NO`** and press `Enter`.

Caution – Do not unplug the power from the appliance or interrupt the reset in any way. If the reset is interrupted, the appliance may become unusable until serviced.

To use the appliance after a factory reset, you must configure it as explained in *Initial Configuration* (page 13).

Disposal Instructions

Dispose of the appliance separately from household waste at an appropriate waste disposal facility at the end of its useful service life.

StoneGate Appliance Installation Guide

This booklet covers the initial installation and configuration tasks specific to your StoneGate Appliance.

For information on how to prepare the Management Center for a new engine installation, see the other available documentation. See inside for further details.

All documentation and our technical knowledge base is available at: www.stonesoft.com/support.

STONESOFT

Secure Information Flow

Stonesoft Corporation
International Headquarters
Itälahdenkatu 22 A
FI-00210 Helsinki, Finland
tel. +358 9 4767 11
fax. +358 9 4767 1349
www.stonesoft.com

Stonesoft Inc.
Americas Headquarters
1050 Crown Pointe Parkway
Suite 900
Atlanta, GA 30338, USA
tel. +1 866 869 4075
fax. +1 770 668 1131

Copyright 2010 Stonesoft Corporation.